TESTING AN INTERPERSONAL PROCESS MODEL OF INTIMACY USING INTIMATE DISCUSSIONS OF COMMITTED ROMANTIC COUPLES

A Dissertation

by

ANGELA MARIE CASTELLANI

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2006

Major Subject: Psychology

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ABSTRACT

Testing an Interpersonal Process Model of Intimacy Using

Intimate Discussions of Committed Romantic Couples. (May 2006)

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This study attempts to better understand relationship processes that promote or enhance a couple's experience of emotional intimacy in their relationship. An overarching goal of the research is to test Reis and Shaver's (1988) interpersonal process model of intimacy with a sample of committed, romantic couples. The interpersonal process model asserts that discussions involving self-disclosure and empathic responding will result in subjective feelings of emotional intimacy. Reis and Shaver's model suggests that more vulnerable self-disclosure will promote deeper levels of emotional understanding and concern, subsequently resulting in greater subjective intimacy. Analyses tested the interpersonal process model of intimacy by examining self- and partner-reports of self-disclosure, empathic responding, and emotional intimacy. In this study, data were collected on 108 committed romantic couples from the community. Couples completed a packet of questionnaires individually and then engaged in videotaped interactions in which they discussed times when (a) someone other than their partner hurt their feelings (low-risk), and (b) their partner hurt their feelings (high-risk). The discussion topics were aimed at eliciting vulnerable self-disclosure and empathic

responding. Results support the interpersonal process model, showing that self-disclosure and empathy are positively related to greater reports of post-interaction intimacy. Empathy proved to have a stronger impact on intimacy in high-risk discussions than low-risk discussions. The impact of self-disclosure and empathy on intimacy did not differ for men and women, suggesting that similar processes are at work for both genders. Methodological and clinical implications are discussed, along with suggestions for future research.

DEDICATION

I dedicate my dissertation work to my husband Raed, whose humor, friendship, and love has made this process so enjoyable. I am also very grateful for the never-ending support of my parents, Gene and Debra Castellani. And thank you to my many friends who have encouraged me throughout my time at A&M. I will always appreciate all they have done.

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INTRODUCTION

Intimacy is a multifaceted construct encompassing physical, behavioral, cognitive, and emotional aspects of a couple's relationship. Most researchers, theorists, and clinicians agree that intimacy is a critical component of a satisfying interpersonal relationship (Prager, 1995; Reis, 1990; Waring, 1985). Although much of the literature emphasizes the importance of emotional components of intimacy, little is known empirically about the key processes that maintain or enhance this aspect of a couple's relationship. To better understand the role of intimacy in a committed relationship, existing conceptualizations and models of intimacy and relevant research testing these models will first be reviewed.

Conceptualizations of Intimacy

Multiple theories and models exist that define emotional intimacy and explain the development of intimate relationships over time. Historically, Sullivan (1953) described intimacy in terms of revealing oneself through self-disclosure of world-views and opinions and the validation of one's personal worth by the listener. Rogers (1961, 1970) advocated unconditional positive regard and validation as a means for fostering intimacy, particularly in the therapeutic relationship. Others have defined intimacy in terms of the degree of need-satisfaction being met in a relationship (Clinebell & Clinebell, 1970) and the sharing of one's hurt and fears of being hurt (L'Abate & L'Abate, 1979).

This dissertation follows the style of the *Journal of Consulting and Clinical Psychology*.

Cordova and Scott (2001) presented a behavioral definition that describes intimacy as "a process that emerges from a sequence of events in which behavior vulnerable to interpersonal punishment is reinforced by the response of another person" (p. 75). Cordova and Scott assert that interpersonal vulnerability from the speaker and a nonpunishing response from the listener constitute an intimate event and will likely result in feelings of intimacy. Indeed, many theorists agree that the act of being vulnerable and self-disclosing in an interaction while experiencing validation and caring from the listener are critical factors that can produce feelings of intimacy in a relationship (Prager, 1995; Reis & Shaver, 1988).

Prager (1995) has produced notable work towards constructing a comprehensive, researchable definition of intimacy. She has separated the concept of intimacy into two basic parts: intimate interactions and intimate relationships. First, *intimate interactions* are the dialogues or discussions between two individuals that occur at a particular time. Intimate interactions are made up of intimate behaviors and intimate experiences. Prager posits that *intimate behaviors* are the actual, observable verbal and nonverbal behaviors that individuals engage in when they are interacting intimately. Intimate behaviors may include vulnerable self-disclosure of personal information, an affectionate touch, or shared emotional expressiveness. Prager notes that if an interaction is negative or critical, the participants are likely to experience little or no intimacy from the experience. *Intimate experiences* are the subjective emotions and feelings that occur as a result of the intimate interaction, for example, perceptions of feeling understood and cared for by another, and feeling affectionate toward another.

Accordingly, Prager (1995) defines *intimate relationships* as those relationships in which (a) there exists a history of intimate interactions, (b) intimate interactions continue to occur on a consistent basis, and (c) there is a likelihood of future intimate interactions. Examples of intimate relationships include close friendships and committed romantic relationships. By conceptualizing intimacy in this way, Prager has distinguished between the behavioral, observable components of intimate interactions and the subjective, emotional experience of intimacy.

The Interpersonal Process Model of Intimacy

Building on previous conceptualizations of intimacy, Reis and Shaver (1988) developed an interpersonal process model of intimacy. They assert that intimacy results from a process that involves one individual (the initiator) sharing personally relevant and vulnerable information to another individual (the responder). In this model, initiators may communicate information about their thoughts and feelings, or they may share factual information. As the process continues, the responder communicates back to the initiator comments or gestures expressing understanding, acceptance, and validation. During the intimacy process, it is important that (a) the responder accurately conveys that he or she empathizes with the initiator, and (b) the initiator interprets the responder's comments as empathic and accepting. A breakdown in the process will likely result in little intimacy being experienced from that particular interaction.

Several important factors must be understood about the interpersonal process model of intimacy. First, the model distinguishes between emotional self-disclosure and factual self-disclosure. Reis and Shaver posit that emotional self-disclosures will result

in greater experienced intimacy because the disclosing partner is sharing feelings about his or her core self, and this type of disclosure is more likely to elicit support and validation from the listening partner. Deeply emotional disclosures are also thought to be more "risky" because the individual is more vulnerable. In a romantic relationship, risky disclosures which are well-accepted and validated can provide an opportunity for profound sharing and closeness between the partners. On the other hand, a risky self-disclosure may also be met with invalidation, harsh criticism, or emotion dysregulation. Therefore, the level of vulnerability inherent in the topic or discussion is likely to influence the degree and salience of emotional disclosure and subsequent feelings of closeness or distance.

Second, this model emphasizes the importance of perceived empathic responding from the responding partner. For the initiator to experience intimacy, he or she must feel understood, validated, and cared for by the responder. The initiator's perception that the listener is responding empathically is a core aspect of Reis and Shaver's interpersonal process model of intimacy. Empathic responding becomes even more critical when examining committed romantic relationships, where distortions and misperceptions can be extensive in distressed couples.

While Reis and Shaver's model largely attends to what occurs during any given intimate interaction or event, they acknowledge that intimacy accrues or erodes with repeated interactions over time. Furthermore, perceptions of intimacy may change and evolve over the course of a relationship. Conceptually, Reis and Shaver's interpersonal

model of intimacy provides a foundation for examining the experience of intimacy on an interaction-by-interaction basis.

Research on the Interpersonal Process Model

Laurenceau, Barrett, and Pietromonaco (1998) provided one of the first direct tests of Reis and Shaver's interpersonal process model of intimacy. In their study, undergraduate subjects kept detailed interaction diaries over the course of a one- and two-week period. Participants were asked to complete a fixed-format interaction record after every interaction that lasted 10 minutes or longer. The interaction record measured self-disclosure, partner disclosure, feeling accepted by the listener, and any intimacy experienced during the interaction. Laurenceau and colleagues found support for the interpersonal model of intimacy. More specifically, self- and partner-disclosure were found to be strong predictors of intimacy, especially when the speaker reported feeling understood, accepted, and cared for by the listening partner (partner responsiveness). However, perceived partner responsiveness was found to be a relatively weak mediator between disclosure and subjective reports of felt intimacy.

Although this was the first direct test of Reis and Shaver's interpersonal process model of intimacy, Laurenceau et al. (1998) acknowledged several limitations to their study. First, the participants were college students, making unclear the degree to which their data can be generalized to other populations. Laurenceau and colleagues suggested a need for studies examining the intimate interactions between adults in committed relationships. Second, interaction rating forms were only completed by one member of the interaction, excluding valuable information from the second participant in the dyadic

exchange. The transactional nature of intimate discussions warrants research that measures the experience of both participants. Observational data can also provide valuable information in this regard.

Grabill and Kerns (2000) examined the role of attachment style as it relates to Reis and Shaver's (1988) interpersonal process model of intimacy, more specifically examining self-disclosure and perceptions of validation and caring. In an initial study, 553 undergraduates completed a battery of self-report questionnaires assessing attachment style, tendency to self-disclose to a same-gender friend, responsiveness to others (empathy), and perceptions of responsiveness from others. As expected, secure individuals were more likely to self-disclose, respond empathically to others, and feel understood and cared for by others. Preoccupied individuals rated themselves as lower on all three intimacy characteristics.

In a follow-up study by the same investigators (Grabill & Kerns, 2000), 127 same-gender friend pairs engaged in videotaped discussions around topics of their choice which were intended to elicit strong personal thoughts or feelings. Self-report questionnaires assessed attachment style, self-disclosure of facts and emotion, and perceptions of validation and caring from the listener. Observational coding of the videotapes assessed degree of disclosure and observed responsiveness of the friend. As predicted, securely attached individuals reported greater self-disclosure and perceptions of validation; however, observer reports did not correspond with this finding. Coders did not observe greater self-disclosure and validation with securely attached individuals. Consistent with the Reis and Shaver model (1988), both studies found self-disclosure

and perceptions of validation to be correlated, especially for securely attached individuals who tended to be more comfortable in intimate interactions. Gender differences observed in these two studies are reported below.

Self-disclosure

Whereas few studies have been conducted to directly test the Reis and Shaver model of intimacy, considerable research has been done in the areas of self-disclosure and empathic responding. Monsour (1992) recruited 164 college students to complete a survey which included an open-ended inquiry regarding intimacy. Participants were asked, "What do you mean by the term 'intimacy' when used in reference to your cross-sex (or same-sex) friends?" and "How do you express intimacy in your relationship?" Monsour found that self-disclosure was the most frequently listed meaning of intimacy for both males and females in cross- and same-sex friendships. In the study, self-disclosure was defined as revealing something about oneself of which the friend was probably not aware. Results also indicated that individuals defined intimacy in terms of emotional expressiveness, specifically as the sharing of emotions and feelings about oneself or the relationship.

In a study exploring intimacy in married couples versus strangers, Morton (1978) asked 24 married couples and 24 opposite-sex stranger dyads to engage in discussions around intimate and non-intimate topics they selected from a list. In these discussions, when compared to males, females demonstrated greater evaluative intimacy (personal feelings or opinions) than descriptive intimacy (private facts) overall. When strangers discussed an intimate topic, they communicated fewer private facts and trivialized

intimate information about themselves. However, they did express more evaluative intimacy, suggesting that it may have been relatively "safer" for strangers to exchange feelings or opinions as compared to personal information.

When analyzing data separately for married couples, Morton (1978) also found that spouses communicated with more descriptive intimacy (private facts), reciprocated intimacy less, and exhibited less evaluative intimacy (personal feelings or opinions) as compared to stranger dyads. Married partners tended to personalize non-intimate topics through the sharing of intimate facts, especially during conjoint or shared exchanges. These findings suggested that more intimate couples may exhibit greater descriptive intimacy around non-intimate topics and less evidence of reciprocity (tit-for-tat intimate exchanges of information). In other words, married couples created vulnerability and an intimate environment when the topic was neutral, and couples did not exhibit quid pro quo reciprocity of self-disclosure such as usually seen with friend- and stranger-dyads (Clark & Reis, 1988; Morton, 1978).

As previously discussed, Laurenceau et al. (1998) directly tested an interpersonal model of intimacy. In their study, subjects kept detailed interaction diaries that measured self-disclosure, partner disclosure, feeling accepted by the listening partner, and subjective intimacy experienced during the interaction. The interaction diary also asked subjects to record the content of the self-disclosure, whether it was emotional or factual. Consistent with the Reis and Shaver (1988) model, Laurenceau and colleagues found that emotional self- disclosures (thoughts and feelings) were more strongly linked to subjective feelings of intimacy than were factual self-disclosures. Accordingly,

emotional self-disclosure is also thought to be an important maintaining factor in the intimacy found in committed relationships (Fitzpatrick & Dindia, 1986).

Empathic responding

An important component of an intimate interaction is the response of the listening partner. Broadly speaking, empathy refers to one's tendency to react in an understanding and caring manner to the observed experiences of another (Davis, 1983). Theorists have typically viewed empathy in terms of its cognitive (i.e., perspective-taking) and emotional (i.e., sympathy) components. In fact, Davis (1983) argues for a multidimensional conceptualization of empathy which includes both affective and cognitive elements.

Barrett-Lennard (1981) explored the concept of empathic responding by proposing a three-phase sequence involved in an empathic interaction. In the first phase, the responder is actively attending to the discloser (initiator), and the discloser's experience begins to elicit a covert empathic response within the responder. In phase two, the responder expresses in some way a subjective awareness of the discloser's experience. Lastly, phase three involves the discloser's perception or acceptance of empathy from the responder. Barrett-Lennard (1981) asserts that these phases are cyclical and based on feedback from the discloser and accurate expression from the responder.

In Barrett-Lennard's (1981) empathy cycle, the process can be derailed at several different points. First, if the responder does not have the capacity or emotional understanding to identify with the discloser's experience, then he or she will not

empathize with the discloser internally. Second, the responder may feel empathy for the discloser, but be unable to correctly, accurately, or sufficiently express their empathic concern in a way that can be heard by the discloser. Lastly, the responder may successfully deliver their message of empathic concern, but the discloser may misinterpret or distort the responder's reply in a negative way, a phenomenon which readily occurs in couples experiencing distress (Bradbury & Fincham, 1992).

Gender effects and intimacy

What differences, if any, exist between men and women in terms of self-disclosure, empathic responding, and feelings of intimacy? Some research has found gender differences in intimate behaviors. For example, Grabill and Kerns (2000) found gender differences in self-reports of self-disclosure, (empathic) responsiveness to others, and perceived validation and support from others. In their study of 550 undergraduate students and 127 friend pairs, women were more likely to self-disclose, to respond empathically to others, and to perceive support and validation from same-gender friendships. However, in this study the use of same-gender friend pairs limits the conclusions that can be drawn about gender and intimacy. Might opposite-gender friends or romantic relationships provide different results?

Morton (1978) asked 24 married couples and 24 opposite-sex stranger dyads to engage in discussions around intimate and non-intimate topics they selected from a list. In this study, Morton explored the degree of evaluative intimacy (personal feelings or opinions) and descriptive intimacy (private facts) expressed during these interactions.

Overall, females demonstrated greater evaluative intimacy than males, perhaps alluding to a gender difference in emotional expressiveness.

In their review of the literature, Dindia and Allen (1992) concluded that interactions between two females are likely to be the highest in self-disclosure depth, followed by male-female dyads, and male-male dyads exhibiting the least personal self-disclosure. Research examining motives and intimacy has found that men and women differ in terms of their goals for intimate interactions. Prager, Fuller, and Gonzalez (1989) found that women more typically identify self-expression and social validation as reasons for engaging in personal and private self-disclosure. Men are believed to disclose more in interactions when there is an instrumental aim, such as developing working relationships with colleagues (Shaffer & Ogden, 1986).

Whereas some studies have found gender differences in intimacy-related constructs, others continue to find women that and men are more similar than different in how they view intimacy and engage in intimate interactions. Merves-Okin and colleagues (1991) found few differences in how male and female partners viewed self-disclosure and intimacy in their marriage. Seventy-five married couples completed self-report questionnaires that assessed attitudes toward self-disclosure, intimacy, and relationship satisfaction. Male and female partners appeared more similar than different in terms of their self-disclosure and verbal expression of feelings (Merves-Okin, Amidon, & Bernt, 1991). Furthermore, several studies have found that when looking at heterosexual romantic relationships, men and women disclose to similar degrees and

about similar topics (Chelune, Rosenfeld, & Waring, 1985; Prager, Fuller, & Gonzalez 1989).

Limitations to the Interpersonal Process Model

How might one interpret and understand the intimate discussions that occur among committed couples? Are they inherently different than the interactions that occur between new friends or new dating relationships? Currently, there is no empirical evidence to support or refute Reis and Shaver's (1988) interpersonal process model as it applies to committed romantic couples. Whereas the model provides a strong theoretical foundation for defining intimacy, the model has not been adequately examined as it relates to the intimate interactions that occur in committed relationships.

At this time, little is known about the relation between isolated intimate discussions and enduring emotional intimacy in a couple. What is known is that numerous intimate events and discussions occur throughout the course of a relationship, with feelings of intimacy accruing since the courtship stage. One can presume that this subjective feeling of intimacy in the relationship is a major factor in a couple's decision to commit to each other and build a life together. One characteristic of the interpersonal process model is the emphasis on self-disclosure that involves vulnerability and risk-taking with one's partner. However, topics once considered vulnerable at the beginning of a relationship may lose their salience as the relationship becomes more safe and stable. One drawback of the interpersonal process model may be that intimate events are defined in terms of vulnerable discussions or revelations about oneself to the partner. Therefore, interactions involving shared meaning and understanding in the absence of

self-disclosure are overlooked and not recognized as contributing to overall reports of relationship intimacy. Furthermore, couples may report feeling intimate after discussions which involved little or no self-disclosure.

Intimate discussions that occur at the beginning of a relationship may have a greater impact on the individual's sense of closeness than do interactions that occur well into the couple's committed relationship. It is also likely that many couples continue to engage in intimate discussions quite frequently in their everyday life. Viewing just one intimate discussion between partners provides only a small glimpse into their intimate world. Although Reis and Shaver's model of intimacy may not directly map onto committed couples' discussions of intimate topics, the model can nevertheless direct investigators in identifying which interactional factors may contribute to subjective feelings of intimacy post-discussion.

With that in mind, the current study attempts to better understand the communication processes that promote or enhance couples' experience of emotional intimacy in low- and high-risk discussions. While recognizing the significance and impact of a couple's overall intimate history, this study examines which factors make it more or less likely that an individual will experience feelings of intimacy and closeness following an interaction with their relationship partner.

Purpose of the Present Study

The purpose of the present study is to test an interpersonal process model of intimacy that asserts that discussions involving self-disclosure and empathic responding will result in subjective feelings of emotional intimacy. Intimacy has been defined and

studied in various ways. In the current study, we conceptualize intimacy in terms of Reis and Shaver's (1988) process definition of emotional intimacy.

Similar to Prager's two-part conceptualization of intimacy, Reis and Shaver posit that the subjective experience of emotional intimacy results from intimate events or exchanges. An intimate event is an occasion on which partners exhibit emotional vulnerability and empathic support. More specifically, *intimate events* are defined as behavioral exchanges characterized by one individual's vulnerable self-disclosure followed by empathic responding from his or her partner. Vulnerable self-disclosure can be identified as sharing feelings of shame, embarrassment, or hurt with the listening partner. This study will provide a unique contribution to the literature by directly testing Reis and Shaver's interpersonal process model in a sample of committed, romantic couples.

HYPOTHESES

Current hypotheses are based on both empirical research and conceptual work. The interpersonal process model of intimacy posits that if the initiating partner is vulnerable and self-disclosing and the responding partner is empathic and caring, then both partners will report feeling more intimate following the discussion. To what extent do self-disclosure and empathy individually impact intimacy, and is there an incremental effect of the two constructs? The first hypothesis is a basic test of the components of Reis and Shaver's interpersonal process model of intimacy.

H1. Reports of self-disclosure and empathic responding will relate to reports of greater intimacy.

In the context of an intimate event and the experience of emotional intimacy, the gender of the participant may influence one's experience in the discussion. Research is equivocal regarding gender differences in self-disclosure, empathy, and the experience of intimacy, especially when studying a sample of committed couples. It is hypothesized that men and women will not differ in the processes that promote or enhance intimacy in a discussion. Men and women will experience intimacy in similar ways across high- and low-risk discussions.

H2. No gender effects will be found regarding the relation between self-disclosure, empathic responding, and intimacy.

The level of vulnerability inherent in a topic or discussion is likely to influence the degree and salience of emotional disclosure and subsequent feelings of closeness. A higher-risk topic may require partners to be more vulnerable and participate in a riskier exchange. Therefore, those couples who successfully disclose and respond around a

more vulnerable topic are hypothesized to experience deeper emotional understanding, concern, and greater felt intimacy. Couples in which high-risk topics trigger difficulties in emotion regulation and communication are hypothesized to exhibit less self-disclosure, less empathic responding, and overall less intimacy. Therefore, the relation between self-disclosure, empathy, and intimacy will be moderated by the inherent risk of the discussion.

H3. *The linkage between self-disclosure, empathic responding, and intimacy will be stronger in the high-risk condition.*

METHOD

Overview of Procedure

To test the hypotheses, data were collected on a sample of romantic, committed couples. Data collection was initiated in April of 2003 and completed in March of 2004. To test the interpersonal process model, partners engaged in discussions aimed at eliciting self-disclosure and empathic responding. Following each discussion, self-report measures were completed by each partner to assess initiator (speaker) and responder (listener) perceptions of self-disclosure, empathic responsiveness, and intimacy. In the current study, the level of vulnerable self-disclosure was either low-risk to the initiator or high-risk. Low risk interactions were operationalized as a discussion of interpersonal injury involving someone from outside the relationship, whereas high-risk interactions involved discussion of emotional injury from something said or done by one's partner.

Couples completed a battery of self-report questionnaires addressing relationship satisfaction and emotional intimacy. Couples then engaged in videotaped interactions in which they discussed occasions when (a) someone other than their partner hurt their feelings, and (b) their partner hurt their feelings. Subjective self-reports of self-disclosure, empathic responding, and overall feelings of emotional intimacy were collected immediately following each couple's discussion of hurt feelings (see Figure 1). The observational data obtained in the study will not be used in the current analyses. Analyses will be limited to the questionnaire administered immediately following each videotaped discussion.

Participants

One-hundred and eight cohabitating couples were recruited from the Bryan/College Station community using a phone-sampling technique. In phone sampling, participants were randomly selected from the phone book and invited to participate in a study examining the relation between emotion and relationship closeness. Additional recruitment procedures included inviting prior participants to share information regarding this study with eligible acquaintances, and approximately 10 couples were recruited by this method. To be eligible to participate in the study, participants had to be 18 years of age or older and in a cohabiting opposite-sex relationship for longer than six months, and both partners had to agree to participate. As compensation for their participation, couples were entered into a drawing to win prizes.

A majority of the couples in the current study were married (n = 95), whereas the remainder were dating and cohabitating (n =13). Couples in the current study were married an average of 13.5 years (SD = 13.6), with relationships ranging from 6-months cohabitating to 54 years of marriage. Participants' average age was 41 years (SD = 14.9) and average education was 16 years (SD = 2.7). The sample was largely Caucasian (n = 198), with very few Asian (n = 4), African-American (n = 2), or Hispanic (n = 12) participants. Partners reported being relatively satisfied in their relationships, as indicated by the Global Distress Scale (GDS) of the Marital Satisfaction Inventory-Revised (Snyder & Aikman, 1999). On the GDS, partners reported an average standardized T-score of 44.45 (SD =15.30).

Observational Data Collection

Couples completed the study at the couple research lab at Texas A&M University or two researchers went to their home. Thirty-two percent of the couples came to the research lab for the study (n = 35) and 68% of the couples chose to have data collected in their homes (n = 73). The total study took 1 ½ hours to complete. After completing an initial set of questionnaires, couples were asked to engage in videotaped discussions of their hurt feelings events (see Figure 1). (The observational data obtained in the study will not be used in the current analyses. Analyses will be limited to the questionnaire administered after each videotaped discussion.)

In the first interaction task, both partners completed the Measure of Hurt Feelings (described below) which asked each partner to "Identify a time when *someone else* (not your partner) hurt your feelings." This constituted the "low-risk" condition. Next, one partner (the initiator) was chosen to "Discuss a time when someone else hurt your feelings," while the other partner (the responder) was asked to "Be involved in the discussion and respond to your partner however you wish." These are standard instructions used in observational research with both clinic and community couples (Snyder & Abbott, 2002). This interaction was videotaped and lasted for a full 7 minutes. Following the interaction, the partner assigned to the first role (hurt feelings initiator) reported his/her perceptions of the interaction on the Measure of Intimate Events (described below). The partner assigned to the second role (empathic responder) also reported his/her perceptions on the Measure of Intimate Events. After a short break, the roles were reversed (i.e., the partner who was the initiator in the first discussion

assumed the role of responder and vice versa) and couples were videotaped engaging in the second 7-minute discussion task (see Figure 1).

In the second interaction task, each partner was asked to "Identify a time when *your partner* hurt your feelings." This constituted the "high-risk" condition. The procedure mirrored that of the first task, except that the topic changed from "hurt feelings by other" to "hurt feelings by partner." Couples again took turns discussing this topic and completed the Measure of Intimate Events questionnaire following each discussion.

Possible order effects were controlled in the data collection by alternating the first initiators in terms of gender. For half of the couples, the male partner went first on the "hurt feelings by other" interaction and the female went first on the "hurt feelings by partner" interaction; for the remaining half of couples their roles were reversed. Within the couple, the partner who went first for the "hurt feelings by other" interaction then went second for the "hurt feelings by partner" interaction. However, the set of "hurt feelings by other" interactions always occurred *before* the "hurt feelings by partner" interactions, so as to minimize residual effects in terms of highly charged affect that may have resulted from the "hurt feelings by partner" interaction.

Measures

Both partners completed a battery of self-report measures privately and independently, and the results were not shared with the other partner. Of relevance to the current study, both partners completed the following questionnaires: the Measure of Hurt Feelings and the Measure of Intimate Events (please see the Appendix).

Participants first completed a set of questionnaires not used in the analyses of the current study. Participants then completed the Measure of Hurt Feelings, a self-report inventory developed specifically for this study. The Measure of Hurt Feelings is a brief measure intended to elicit recollection of a time when (a) the respondent's feelings were hurt by someone other than their partner, and (b) their feelings were hurt by their partner. After recalling a time of hurt feelings, participants rated the event on a scale from 1 to 10, indicating the degree to which their feelings were hurt and the significance of the situation. Participants were encouraged to select a topic ranging in severity of hurt feelings from 5 to 7. The intent was to identify an event sufficiently significant to generate discussion, but not so emotionally charged as to be inherently overwhelming. Finally, participants were told to write a brief paragraph about this event. Participants were informed prior to completing this measure that the two events they wrote about would be the topics discussed during the interaction tasks.

Following each videotaped interaction, participants completed the Measure of Intimate Events. The Measure of Intimate Events is an intimacy measure adapted from Prager and Buhrmester's (1998) Interaction Record Form – Intimacy (IRF-I). The IRF-I is a measure of self-disclosure, empathy, and intimacy used to assess individuals' feelings immediately following an interaction (Lippert & Prager, 2001). The IRF-I was slightly modified in this study to separately address speaker (initiator) and listener (responder) perceptions of self-disclosure, empathy, overall affect of the interaction, and emotional intimacy. The Measure of Intimate Events is a 17-item self-report measure using a 4-point Likert scale (1 = not at all true of this interaction; 4 = very true of this

interaction). Items from both the initiator and responder versions are nearly parallel and differ only in terms of perspective (e.g., "I disclosed during this interaction", "My partner disclosed during this interaction"). The Measure of Intimate Events was administered to both partners individually directly following each of four 7-minute interactions.

Outcome variable

The outcome variable used in this set of analyses is the individual's report of his or her own emotional intimacy experienced after each discussion. Intimacy was measured using two questions from the Measure of Intimate Events questionnaire: "I feel closer to my partner following this interaction," and "This interaction felt intimate." Items were measured using a 4-point Likert scale (1 = not at all true of this interaction; 4 = very true of this interaction). Intimacy was measured in the low-risk condition for initiators (alpha = .72), in the high-risk condition for initiators (alpha = .82), in the low-risk condition for responders (alpha = .78) and in the high-risk condition for responders (alpha = .77). Intimacy items were identical across condition for the initiator and responder versions of the Measure of Intimate Events.

Predictor variables

Self-disclosure, empathy, and emotional connection (self-disclosure×empathy interaction term) were the three predictor variables tested in the current study. Self-disclosure was measured using five questions from the Measure of Intimate Events, such as "I told my partner about my feelings or emotions," and "I shared something personal or private during this interaction." Self-disclosure was measured in the low-risk

condition for initiators (alpha = .52), in the high-risk condition for initiators (alpha = .58), in the low-risk condition for responders (alpha = .65) and in the high-risk condition for responders (alpha = .63). Items from the responder version of the Measure of Intimate Events scale are nearly parallel in wording to the initiator version and differ only in terms of perspective. For responders, the construct being measured can be thought of as the *perception of partner's self-disclosure* (see Appendix A). Items were identical across condition.

Empathy was measured using five questions from the Measure of Intimate Events, such as "I listened attentively during this interaction," and "I was supportive and caring during the interaction." Empathy was measured in the low-risk condition for initiators (alpha = .78), in the high-risk condition for initiators (alpha = .84), in the low-risk condition for responders (alpha = .70) and in the high-risk condition for responders (alpha = .81). Items from the initiator version differ only in terms of perspective and therefore measure *perception of partner's empathy*. Items were identical across condition.

Emotional connection is an interaction product term created to test the combined effect of self-disclosure and empathy on one's experience of intimacy. To create the variable, the raw score of self-disclosure and the raw score of empathy were multiplied, and the product was converted to a z-score. Conceptually, emotional connection represents the combined experience of both self-disclosure and empathy in a discussion.

Moderator variables

The level of risk inherent in the topic of discussion served as a moderator in this study. All couples participated in both a low-risk and high-risk discussion. The low-risk condition was coded "-1" and the high-risk discussion was coded "+1". Gender of the participant was also examined as a potential moderator, in that women were coded "-1" and men were coded "+1".

STATISTICAL ANALYSES WITH DYADIC DATA

Data Analytic Strategies in Couples Research

Frequently, when data are gathered from both members of a dyad as is done in couples studies, researchers inappropriately treat those observations as independent from one another. However, it is well recognized that romantic partners heavily influence each other's thoughts, feelings, and behaviors (Campbell & Kashy, 2002), suggesting that partners' data may not be independent from each other. Dyadic data are interdependent by nature and the responses from partners are often correlated. Kenny and Cook (1999) assert that couple data reflect the interpersonal system and not the individual. Consequently, when partners' observations are correlated and the data are still treated as independent observations, this can result in a bias in *p* values (Kenny, 1995).

In the literature, several statistical approaches have been used to account for the interdependence in dyadic data. Traditionally, multiple regression has been used to circumvent the problem of nonindependence. In this case, couples are separated in terms of a distinguishing variable, such as gender, and two regression equations are estimated separately, one for men and one for women. Although this circumvents the problem with interdependence, many hypotheses cannot be tested using this statistical technique. Furthermore, the strategy of dividing the sample by gender may suggest that strong gender differences exist in the data when that may not be theoretically or empirically supported by previous research.

Actor-Partner Interdependence Model

More recently, multilevel modeling (i.e., hierarchical linear modeling) has become a popular method for analyzing dyadic data. In multilevel modeling, the lower level is the individual, whereas the upper level is the couple, and the variance associated with each level is estimated. Kenny and colleagues (Kashy & Kenny, 2000; Kenny & Cook, 1999) proposed the Actor-Partner Interdependence Model (APIM), which offers several advantages as compared to other data analytic strategies for couple data. The APIM is a type of multilevel model that explicitly addresses the fact that in couples research, a measurement refers to an interpersonal system (the dyad), rather than to an independent, individual observation. Especially when examining couples interactions, as is the case in the current study, individuals' scores on various measures will be directly affected by the way both partners engaged in the discussion and the complex interpersonal exchange that occurred. Fortunately, the APIM allows for a thorough exploration of both individual and partner effects.

In the APIM (see Figure 2), the couple is the unit of analysis and each member of the couple has a score on a particular independent or predictor variable, as denoted by M1 and F1 in the figure. Each member of the couple also has a score on the dependent or outcome variable, represented by M2 and F2 in the figure. In the model, *actor effects* are defined as the direct effect an individual's independent variable has on his or her own dependent variable (M1→M2; F1→F2). For example, the direct effect of initiator's report of self-disclosure on his or her own experience of intimacy is an actor effect.

Partner effects denote the influence that an individual's independent variable has on his or her partner's dependent variable (M1→F2; F1→M2), while controlling for actor effects. An example is the influence that an initiator's self-disclosure has on the responder's intimacy. Partner effects essentially reflect the amount of interdependence between partners in a dyad and serve as evidence that the partners are an interdependent system (Kenny & Cook, 1999). The greater the partner effect, the greater the degree of interdependence in the data (and in the couple). The correlation between the residual scores (e1→ e2) indicates that there is still interdependence in male and female partner scores even after the effect of interpersonal influence has been controlled. This interdependence may be due to compositional effects, in that partners are thought to be similar on many factors even before they met (e.g. socioeconomic status, age, culture), or various other reciprocal processes that occur between partners.

Current Analyses

The APIM approach was used with this sample given the multi-level nature of the dyadic data set and the potential for interdependence. However, the data set posed a unique data analytic challenge because predictor and outcome variables were assessed differently for initiators and responders within each discussion. The complexity of variable measurement made it necessary to modify the APIM approach slightly in order to address the research questions properly.

As previously indicated, the APIM tests for actor and partner effects while controlling for other parameters in the model. However, the current analyses modified the traditional APIM approach slightly and tested actor and partner effects using two

separate independent variables in the same model. The modification was made because the partner version of a particular predictor variable did not correspond to the individual's predictor or outcome variable. To clarify, an actor effect tests the effect of an initiator's report of self-disclosure on his or her own intimacy following a discussion (see Figure 3). If we were to use the same independent variable (self-disclosure), then the equivalent partner effect would test the effect of the initiator's partner's self-disclosure on the initiator's own intimacy. The problem is that the initiator's partner is in the responder role and therefore does not have a self-disclosure rating in that particular discussion. To properly assess the partner effect, the variable of interest is the responder's *perception* of the initiator's self-disclosure. Consequently, the accurate partner effect for self-disclosure is the effect of the initiator's partner's perception of self-disclosure on the initiator's own intimacy. Although using two separate predictor variables in the same model is not the most common test of actor and partner effects, the modification does allow for a more conceptually valid test of the proposed hypotheses.

RESULTS

Interdependence

To test for the degree of interdependence in partners' outcome scores (intimacy), an intraclass correlation (ICC) was computed. In the low-risk condition, 25% of the variation in the intimacy scores is accounted for by the particular dyad to which an individual belongs [ICC =.248, $p < .01$]. In the high-risk condition, 38% of the variation in the scores is accounted for by the particular dyad to which an individual belongs [ICC=.380, $p < .001$]. The moderate correlations in partners' outcome scores suggest that the data are nonindependent and that the assumption of independence of observations has been violated. These findings validate the use of multilevel modeling, and APIM more specifically, to address the issue of interdependence in the current data set.

Gender

Means and standard deviations by gender can be found for initiators and responders in Table 1. When comparing means using one-way ANOVA, women reported higher rates of intimacy post-interaction as compared to men when in the low-risk condition as an initiator [$F(215)= 4.37$, $p < .05$], in the high-risk condition as an initiator [$F(215)= 3.80$, $p < .05$], and in the low-risk condition as a responder [$F(215)=6.53$, $p < .001$]. However, men and women did not differ in their reports of intimacy when in the high-risk condition as a responder [$F(215)=.94$, $p = .335$]. In addition, women initiators in the high-risk condition reported self-disclosing more than

men [$F(215)= 6.53$, $p < .001$]. Men and women did not differ in means on all other variables.

Structure of the APIM Analyses

Means, standard deviations, and zero-order correlations of the predictor and outcome variables for initiators and responders can be found in Table 2 and Table 3, respectively. In the following APIM analyses, the predictor variables (self-disclosure, empathy and emotional connection) were adjusted to Z-scores to facilitate interpretation across variables, and effect coding was used for the categorical variables (risk condition and gender). The outcome variable intimacy was left in raw score form and not converted to a Z-score. Therefore, the intercept is an estimate of the mean for intimacy at the mean levels of the predictor variables. The estimates for actor, partner, and moderator effects are unstandardized regression coefficients.

Multilevel models were run separately for initiators and responders. To test the effect of self-disclosure on intimacy, two separate models were tested. The first model tested actor and partner effects for initiators, and the second tested actor and partner effects for responders. Similar sets of models were tested for empathy and emotional connection (the product term of self-disclosure×empathy). A final combined model tested the incremental impact of each variable while controlling for other predictors in the model. Across all models, the outcome variable was one's own experience of intimacy post-interaction.

Self-Disclosure

Initiators

In the first model, gender, risk-level, initiator self-disclosure, and responder perception of self-disclosure were entered as IVs and initiator intimacy was the DV. The intercept is 6.107, and is an estimate of the mean for intimacy at the mean levels of the predictor variables. The actor effect of self-disclosure estimates the degree to which an initiator's level of self-disclosure affects his or her own intimacy (see Figure 3). This value is b=.464, $t(285)$=7.63, $p < .001$ (see Table 4), indicating that, holding other predictor variables constant, for each standard deviation unit change in self-disclosure, a person's report of intimacy increases .464 raw score points. The relation between an individual's report of intimacy and his or her self-disclosure did not differ in the high- versus low-risk discussions [b= -.002, $t(282)$= -.04, p = .969], and did not differ across gender [b=.027, $t(285)$=.41, p = .685].

The partner effect of self-disclosure estimates the degree to which an initiator's partner's perception of self-disclosure affects the initiator's own intimacy while controlling for actor effects. For initiators, this value is b=.004, $t(277)$=.06, p = .953, and is nonsignificant, indicating that there is not a partner effect for perceived self-disclosure. The valence of the b coefficient determines the interpretation, and risk condition was effect-coded +1 for high-risk and -1 for low-risk discussions. A marginally significant risk-moderated partner effect for perceived self-disclosure was found. The relation between an initiator's report of intimacy and his or her partner's report of perceived self-disclosure did differ in the high- versus low-risk discussions.

The valence of the *b* coefficient is positive, suggesting that the impact of partner's reports of perceived self-disclosure on initiator's own intimacy is stronger in the high risk condition [b= .099, $t(276)$=1.72, $p < .10$]. Gender-moderated partner effects were not significant [b= -.038, $t(278)$= -.59, p = .559].

Responders

In the second model, gender, risk-level, responder perception of self-disclosure, and initiator self-disclosure were entered as IVs and responder intimacy was the DV. The intercept is 6.191, and is an estimate of the mean for intimacy at the mean levels of the predictor variables. The actor effect of self-disclosure for responders estimates the degree to which a responder's perception of their partner's self-disclosure affects his or her own intimacy (see Figure 4). For responders, this value is b=.627, $t(297)$=9.90, $p <$ .001, indicating that, holding other predictor variables constant, for each standard deviation unit change in perceived self-disclosure, a person's report of intimacy increases .627 raw score points. The relation between an individual's report of intimacy and his or her perception of partner's self-disclosure did not differ in the high- versus low-risk discussions [b=.012, $t(298)$=.21, p = .832], and did not differ across gender [b= -.027, $t(298)$= -.41, p = .683].

The partner effect of self-disclosure for responders estimates the degree to which a responder's partner's report of self-disclosure affects the responder's own intimacy. For responders, this value is b= -.053, $t(305)$= -.87, p = .383, and is nonsignificant, indicating that there is not a partner effect for self-disclosure. No risk-moderated

[*b*= -.007, *t*(304)= -.13, *p* = .894] or gender-moderated [*b*= -.085, *t*(306)= -1.28, *p* =.202] partner effects were found to be significant for self-disclosure.

To summarize, initiators' reports of self-disclosure have a significant positive effect on intimacy and this effect is not moderated by either discussion risk-level nor gender. Similarly, responders' reports of perceived self-disclosure have a significant positive effect on intimacy and this effect is not moderated by either discussion risk-level nor gender. A marginally significant partner effect was found for initiators' self-disclosure; however a partner effect was not found for responders. Having established that initiator and responder reports of self-disclosure impact intimacy, how might empathy affect one's report of intimacy?

Empathy

Initiators

In the first model, gender, risk-level, initiator perceived empathy, and responder empathy were entered as IVs and initiator intimacy was the DV. The intercept is 6.102, and is an estimate of the mean for intimacy at the mean levels of the predictor variables. The actor effect of perceived empathy estimates the degree to which an initiator's perception of empathy affects his or her own intimacy (see Figure 5). For initiators, this value is *b*=.719, *t*(332)=10.63, *p* < .001, indicating that, holding other predictor variables constant, for each standard deviation unit change in perceived empathy, a person's report of intimacy increases .719 raw score points (see Table 4). A significant risk-moderated actor effect for perceived empathy was found. The relation between an individual's report of intimacy and his or her perception of empathy did differ in the high- versus

low-risk discussions, suggesting that the impact of perceived empathy on intimacy is stronger in the high risk condition [*b*=.154, *t*(333)=2.54, *p*< .01]. No gender-moderated actor effects were significant [*b*= -.040, *t*(333)= -.57, *p* = .571].

The partner effect of empathy estimates the degree to which an initiator's partner's report of empathy affects the initiator's own intimacy while controlling for actor effects. The partner effect for empathy was nonsignificant [*b*= -.072, *t*(330)=-1.12, *p* = .269], as well as the risk-moderated partner effect [*b*=.063, *t*(324)=1.02, *p* = .307] and gender-moderated partner effect [*b*= .074, *t*(332)=1.01, *p* = .313].

Responders

In the second model, gender, risk-level, responder empathy, and initiator perceived empathy were entered as IVs and responder intimacy was the DV. The intercept is 6.189, and is an estimate of the mean for intimacy at the mean levels of the predictor variables. The actor effect of empathy estimates the degree to which a person's empathy affects his or her own intimacy (see Figure 6). For responders, this value is *b*=.741, *t*(331)=11.09, *p* < .001, indicating that, holding other predictor variables constant, for each standard deviation unit change in empathy, a person's report of intimacy increases .741 raw score points. A marginally significant risk-moderated actor effect for empathy was found. The relation between an individual's report of intimacy and his or her empathy did differ in the high- versus low-risk discussions, suggesting that for responders the impact of empathy on intimacy is stronger in the high risk condition [*b*=.108, *t*(325)=1.71, *p* < .10]. No gender-moderated actor effects were significant [*b*= -.036, *t*(331)= -.49, *p* = .625].

The partner effect of empathy for responders estimates the degree to which a responder's partner's report of perceived empathy affects the responder's own intimacy. The partner effect for perceived empathy was nonsignificant [*b*=.038, *t*(337)=.55, *p*=.584]. The relation between a responder's report of intimacy and his or her partner's report of perceived empathy did not differ in the high- versus low-risk discussions, [*b*=.012, *t*(337)=.19, *p* = .850], and did not differ across gender [*b*=-.020, *t*(337)= -.28, *p*=.783].

In summary, initiators' and responders' reports of empathy have a significant positive effect on intimacy and the effects do not differ for men and women. The impact of empathy on intimacy is moderated by risk-level, suggesting that empathy has a greater impact on intimacy during high-risk discussions. However, no partner effects were found, indicating that a partner's report of empathy does not have a significant impact on one's own intimacy.

Emotional Connection (Self-Disclosure×Empathy)

To test Reis and Shaver's theoretical model of intimacy, it was necessary to examine the combined effect of self-disclosure and empathy on one's experience of intimacy. Therefore, a product term labeled *emotional connection* was created. Similar to the other predictor variables, the product term was converted to a z-score to facilitate interpretation.

Initiators

In the first model, gender, risk-level, initiator emotional connection, and responder emotional connection were entered as IVs and initiator intimacy was the DV.

The intercept is 6.103, and is an estimate of the mean for intimacy at the mean levels of the predictor variables. The actor effect of emotional connection (self-disclosure×perceived empathy) estimates the degree to which an initiator's report of emotional connection affects his or her own intimacy (see Figure 7). For initiators, this value is b=.751, $t(319)$=12.07, $p < .001$, indicating that, holding other predictor variables constant, for each standard deviation unit change in emotional connection, a person's report of intimacy increases .751 raw score points (see Table 4). A significant risk-moderated actor effect for emotional connection was not found. The relation between an individual's report of intimacy and his or her report of emotional connection did not differ in the high- versus low-risk discussions [b=.073, $t(318)$=1.35, p =.180]. No gender-moderated actor effects were significant either [b= -.011, $t(317)$= -.17, p = .863].

The partner effect for emotional connection (perceived self-disclosure×empathy) for initiators estimates the degree to which an initiator's partner's report of emotional connection affects the initiator's own intimacy. The partner effect for emotional connection was not found to be significant [b=.015, $t(319)$=.25, p = .803]. A marginally significant risk-moderated partner effect for emotional connection was found. The relation between an initiator's report of intimacy and his or her partner's report of emotional connection did differ in the high- versus low-risk discussions, suggesting that the impact of a partner's report of emotional connection on one's own intimacy is stronger in the high risk condition [b=.097, $t(314)$=1.73, $p < .10$]. No gender-moderated partner effects were significant [b= .039, $t(317)$=.59, p = .557].

Responders

In the second model, gender, risk-level, responder emotional connection, and initiator emotional connection were entered as IVs and responder intimacy was the DV. The intercept is 6.193, and is an estimate of the mean for intimacy at the mean levels of the predictor variables. The actor effect of emotional connection estimates the degree to which a responder's emotional connection (perceived self-disclosure×empathy) affects his or her own intimacy (see Figure 8). This value is b=.819, t(326)=13.47, $p < .001$, indicating that, holding other predictor variables constant, for each standard deviation unit change in emotional connection, a responder's report of intimacy increases .819 raw score points. No risk-moderated [b=.053, t(325)=.95, p = .343] or gender-moderated [b= -.057, t(326)= -.85, p = .394] actor effects were found to be significant for emotional connection.

The partner effect for emotional connection (self-disclosure×perceived empathy) for responders estimates the degree to which a responder's partner's report of emotional connection affects his or her own intimacy. The partner effect for emotional disclosure was not significant [b=.041, t(328)=.65, p = .517]. No risk-moderated [b=.009, t(328)=.17, p = .868] or gender-moderated [b= -.084, t(329)= -1.28, p = .202] actor effects were found to be significant for emotional connection.

In summary, initiators' and responders' reports of emotional connection have a significant positive effect on intimacy and the effects do not differ for men and women. A marginally significant risk-moderated partner effect was found for initiators, in that the report of their partner's emotional connection had a greater impact on intimacy

during high-risk discussions. Having established the significant positive impact of self-disclosure, empathy, and emotional connection on intimacy, a final combined model tested the incremental impact of each variable while controlling for other predictors in the model.

Combined Model

The final model tested the incremental impact of each predictor variable on intimacy separately for initiators and responders (see Table 5). All three variables were entered into the combined model allowing for a test of the impact of each predictor variable on intimacy while controlling for other predictors in the model. Gender, risk-level, self-disclosure, empathy, and emotional connection were entered as the IVs and intimacy was entered as the DV.

For initiators, results suggest that emotional connection is the only variable which continues to be significant [b=.907, t(314)=2.00, p < .047], whereas the effect of self-disclosure [b= -.192, t(274)= -.71, p = .476] and perceived empathy [b=.024, t(333)=.08, p = .935] on intimacy is no longer significant. Similarly for responders, emotional connection continues to be moderately significant [b= .811, t(310)=1.66, p<.10], whereas perceived self-disclosure [b= -.046, t(271)= -.17, p = .865] and empathy [b=.062, t(311)=.21, p = .836] are no longer significant. For both initiators [b=-.160, t(331)=-3.19, p < .01] and responders [b=-.168, t(329)=-3.31, p < .001], gender exerted a strong effect on intimacy, with women reporting higher intimacy following discussions of hurt feelings than men.

Summary of Results

Initial tests of nonindependence resulted in moderate intraclass correlations, suggesting that partners' scores on intimacy are interdependent. Hierarchical linear modeling, and more specifically the Actor-Partner Interdependence Model, was used to test hypotheses while accounting for interdependence and the multilevel nature of dyadic data.

Results indicate that women report greater mean intimacy than men post-interaction, except when responding in high-risk discussions at which time they do not differ. In addition, women reported greater mean levels of self-disclosure in the high-risk condition than did men. However, no gender-moderated effects were significant in the multilevel models tested, suggesting that the impact of self-disclosure, empathy, and emotional connection on intimacy does not differ for men and women. Across all models, no main effects for risk-level were found, indicating that while holding other variables constant, partners experience similar levels of intimacy in low- and high-risk discussions.

APIM results suggest that initiators' and responders' reports of self-disclosure had a significant positive effect on intimacy, an effect that did not differ in low- versus high-risk discussions. A marginally significant risk-moderated partner effect was found for initiators' partners' reports of perceived self-disclosure, in that the relation between partners' perception of self-disclosure and initiators' intimacy is stronger in the high-risk condition.

Initiator reports of perceived empathy in a discussion were found to have a significant positive effect on intimacy, particularly in high-risk discussions. Similarly, responder reports of empathy were positively related to intimacy. For responders, a marginally significant risk-moderated effect was found for empathy, in that the impact of empathy on intimacy was stronger in the high-risk condition.

For emotional connection (self-disclosure×empathy), a significant positive effect was found for both initiators and responders, in that a greater experience of emotional connection resulted in greater reports of post-interaction intimacy. A marginally significant risk-moderated partner effect was found for initiators, indicating that the effect of initiators' partners' emotional connection on initiators' intimacy is stronger in the high-risk condition.

Finally, all three predictor variables were entered into a model to test for effects while controlling for other predictor variables in the model. In this analysis, only the predictor emotional connection continued to be significant in predicting post-interaction intimacy, whereas self-disclosure and empathy were no longer significant.

DISCUSSION AND CONCLUSIONS

The current study aimed at better understanding communication processes that promote or enhance a couple's experience of emotional intimacy in a discussion. Results of the study support the basic tenets of Reis and Shaver's (1988) interpersonal process model of intimacy. The interpersonal process model states that discussions involving self-disclosure and empathic responding will result in subjective feelings of emotional intimacy. Indeed, initiators' and responders' experience of self-disclosure, empathy, and emotional connection (self-disclosure×empathy) had a positive impact on intimacy, consistent with the Reis and Shaver model.

More specifically, initiators experienced greater intimacy if they also reported greater self-disclosure. If responders perceived their partner to be self-disclosing and open during the discussion, they also reported greater intimacy. Interestingly, a marginally significant risk-moderated partner effect was found for self-disclosure. Initiators in the high-risk discussion were particularly influenced by their partner's perception of their self-disclosure.

Empathy was also found to have a positive impact on intimacy. More specifically, initiators that perceived their partners to be empathic and caring during the discussion reported experiencing greater intimacy. Similarly, responders who reported being empathic during the discussion also experienced more intimacy. For both initiators and responders, the impact of empathy on intimacy was especially salient in the high-risk discussion. Recall that the high-risk condition involved discussing a time when one's own partner caused hurt feelings. If an individual is able to respond with

caring and understanding during a discussion in which he or she is identified as the cause of the hurt feelings, then it leads logically that both individuals would feel intimate and close to their partner as a result.

Emotional connection, the combined interaction of self-disclosure and empathy, was also positively related to intimacy for both initiators and responders. Similar to self-disclosure, a marginally significant risk-moderated partner effect was found for emotional connection. Initiators in the high-risk discussion were particularly influenced by their partner's perception of their emotional connection.

In the APIM analyses, partner effects are the influence that an individual's independent variable has on his or her partner's dependent variable, while controlling for actor effects. Partner effects, when found in the current study, were consistently in high-risk discussions for initiators only. Why might this be? It may be that low-risk interactions do not involve the discussion of relationship threatening phenomena, and initiators likely find it easier to discuss these more benign topics. Initiators are more impacted by their partner's perceptions in the high-risk discussion because of the initiator's greater vulnerability. In turn, initiators may be more attuned to their partner's behaviors, gestures, and reactions during the interaction. The responder's experience may be less impacted by the initiator because it is not his or her own emotional experience being discussed. However, a responder may also feel vulnerable in such a discussion because the topic involves a time in which he or she is the cause of the hurt feelings. Measuring the construct of vulnerability from both the initiator and responder may be useful in better understanding its impact on intimacy.

The absence of factors that promote intimacy in a relationship are not necessarily the same processes that can disrupt intimacy. Low threat topics designed to elicit support and empathy are likely to provide information on those factors that enhance or promote intimacy. However, such discussions may not distinguish dysfunctional from functional couples. A higher-threat, relationship relevant topic may provide a better picture as to what factors disrupt or deter intimacy. One might expect distressed couples to experience emotion dysregulation or negative communication patterns during relationship-oriented discussions, leading to less subjective intimacy. The current study had couples engage in both low- and high-risk topics as a means to better understand the determinants of intimacy. Unfortunately, the sample was not sufficiently distressed or varying in distress for the threat condition to disrupt intimacy in the expected direction. Our research lab is currently in the process of collecting data from couples who are participating in couple therapy. Such an extension of this study will provide an opportunity for a comparison of results with a more distressed sample of couples.

It is clear from the current research that the kind of discussion partners engage in is important to the experience and determinants of intimacy. The type of topic (problem-solving, support-seeking, hurt feelings), the inherent risk of the topic, and even the instructions given to the couple are likely to influence how the couple engages in discussion – an important methodological consideration. Consequently, results from the current study provide information regarding the components of conversation that influence the intimacy process in low- and high-risk discussions of hurt feelings. Future research may explore the applicability of these findings to alternative interaction tasks.

Aside from the specific type of interaction task, gender is another variable commonly examined in couple research. Results of this study indicated that men and women did differ in their overall reports of intimacy, with women reporting greater levels of intimacy post-interaction, with one exception. Men and women did not differ in experienced intimacy when in the responding role in high-risk discussions.

In addition, women initiators in the high-risk condition reported self-disclosing significantly more than did men. However, men and women did not differ in their perceptions of self-disclosure. Why didn't men perceive women to be more disclosing? First, it may be that women felt as if they were disclosing a great deal during risky discussions and that their male partners did not recognize this. Alternatively, males may have accurately perceived their female partner's self-disclosure, but females exaggerated the degree to which they perceived themselves to be opening up in the risky discussion. It may also be that men were reluctant to acknowledge their own emotional disclosure, and thus downplayed the degree to which they shared feelings and emotions during the discussion. Anecdotally, several female participants commented during data collection that they rarely hear their partner discuss hurt feelings so readily. Indeed, female responders may be perceiving and endorsing greater degrees of male self-disclosure because they view it as a rare phenomenon. This possibility is of particular interest given that male and female responders also reported experiencing the same degree of intimacy in high-risk discussions.

The current study failed to find significant gender-moderated effects, indicating that the impact of self-disclosure and empathy on post-interaction intimacy is similar for

both men and women. The lack of gender-moderated effects suggests that men and women do not differ in how these communication processes work to promote feelings of closeness and intimacy. Consistent with previous research (Merves-Okin, Amidon, & Bernt, 1991; Prager, Fuller, & Gonzalez 1989), men and women appeared more similar than different in their experience of self-disclosure and empathy, and the impact of these on intimacy.

One advantage of the current study was the collection of data from both discussion participants. The unique methodology involved assigning each partner to a specific role in the discussion, allowing for the assessment of each variable from both individuals' perspectives. Assigning distinct roles provided the opportunity to assess initiators and responders separately and to gain unique information from each perspective. Results indicate that processes that promote intimacy are similar for both initiators and responders.

The results also yield important clinical implications. It is critical for both researchers and clinicians to understand the processes involved in promoting and disrupting emotional closeness and intimacy in a romantic relationship. The current study examined the experience of intimacy on an interaction-by-interaction basis. With this in mind, couples may benefit from interventions that improve communication skills during intimate discussions. Indeed, existing couple treatment approaches have incorporated interventions aimed at promoting validation and acceptance (Christensen, Jacobson, & Babcock, 1995), thereby improving one's ability to respond in an empathic

and caring way. The current research highlights the importance of emphasizing such communication skills in moments of personal vulnerability when they are most essential.

The current study also had the statistical advantage of using the actor-partner interdependence model. Using the APIM approach allowed for the test of actor and partner effects, all while controlling for other parameters in the models. As a type of multilevel model, APIM analyses also account for interdependence in the data and provide a more statistically sound method for testing effects when observations are not independent. The current data set posed unique challenges with regard to data analysis, and the advanced statistics allowed for thorough testing of the hypotheses. Furthermore, the consistency in the direction of findings across analyses lends confidence to the conclusions one can draw from them.

Limitations and Future Directions

One potential limitation in the current study involved the measurement of self-disclosure. The homogeneity of the construct as it was measured in this sample was only modest. It may be that the self-disclosure items broadly assessed varying aspects of self-disclosure. Example items include, "I told my partner about my feelings or emotions," "I shared something personal or private during this interaction," and "I felt safe and comfortable opening up to my partner." Each of these questions may be assessing a different construct or a different facet of self-disclosure. Those individuals who chose a topic previously discussed by the couple may strongly disagree that they shared something personal or private. However, he or she may still feel as if they disclosed feelings and emotions.

Assessing self-disclosure with romantic, committed couples may pose new challenges when compared to the self-disclosures that occur between acquaintances or friends. What constitutes a vulnerable disclosure for a friend pair may be a benign topic for a couple married 15 years. Future research would benefit from developing a clearer definition of vulnerable self-disclosure for committed couples.

A common limitation in couple research, as is in this study, is the generalizability of the sample to everyday couples. The current sample was highly educated, primarily Caucasian, and relatively free of relationship distress – the consequence of collecting data in a small Texas college town. Our research lab is in the process of collecting a clinical data sample to extend the generalizability of the findings.

Although defining roles during the discussion allowed for specific testing of predictor variables from initiators' and responders' perspectives, the structure can also be considered limiting. In the study, partners were assessed only on those behaviors associated with the assigned role (initiators self-disclosed and responders were empathic). However, dyadic discussions often involve reciprocating self-disclosures and empathic gestures, meaning that some initiators may have been empathic and some responders may have self-disclosed. The current methodology did not assess for this occurrence, and therefore some information may have been overlooked.

Furthermore, the assigned roles may have also prohibited partners from naturally self-disclosing and reciprocating caring gestures because he or she was waiting for their "turn." The act of reciprocating self-disclosures during intimate discussions has been well-documented in the literature (Clark & Reis, 1988), but the extent to which this

process applies to committed couples is unclear. Morton (1978) found that couples exhibited less quid pro quo self-disclosure as compared to friend or stranger pairs; thus it may be that couples in the current study would not engage in reciprocal self-disclosure, regardless. Observational coding of the data will help to address this possible limitation, a project which is currently being conducted in our research lab.

The current study aimed at better understanding communication processes that promote or enhance a couple's experience of emotional intimacy on an interaction-by-interaction basis. Results of the study support the basic tenets of Reis and Shaver's (1988) interpersonal process model of intimacy, suggesting that partners' reports of self-disclosure and empathic responding in a discussion are positively related to the experience of intimacy and closeness. Results from the current study provided several statistical, methodological, and clinical implications, as well as suggestions for future research. Understanding the initiation, development, and maintenance of intimacy in romantic couples is an ambitious goal which should prove to be fruitful for both researchers and clinicians alike.

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APPENDIX A

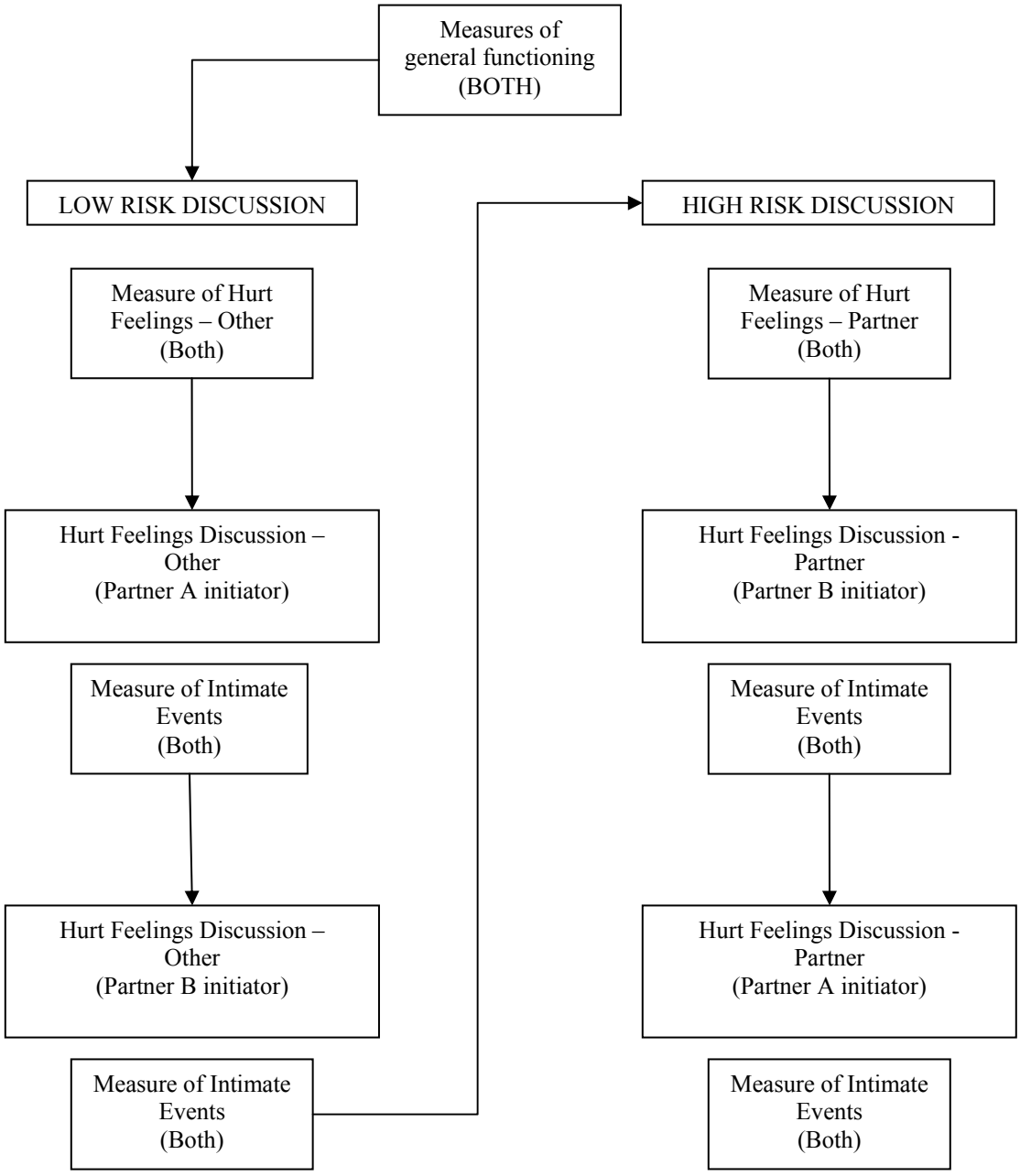

Figure 1. Complete Methodological Procedure For Each Couple Participant.

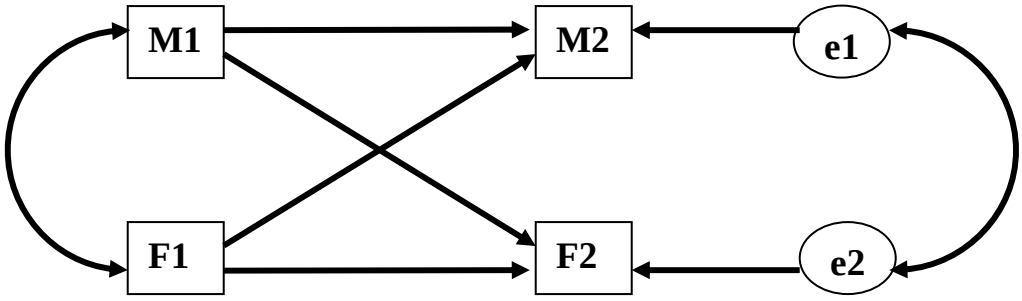

Figure 2: The Actor-Partner Interdependence Model (Kenny & Cook, 1999). M1 and M2 denote male partner observations at time 1 and time 2, F1 and F2 denote female partner observations at time 1 and time 2, and e1 and e2 denote the residual error associated with the outcome variable, after the effect of interpersonal influence has been controlled.

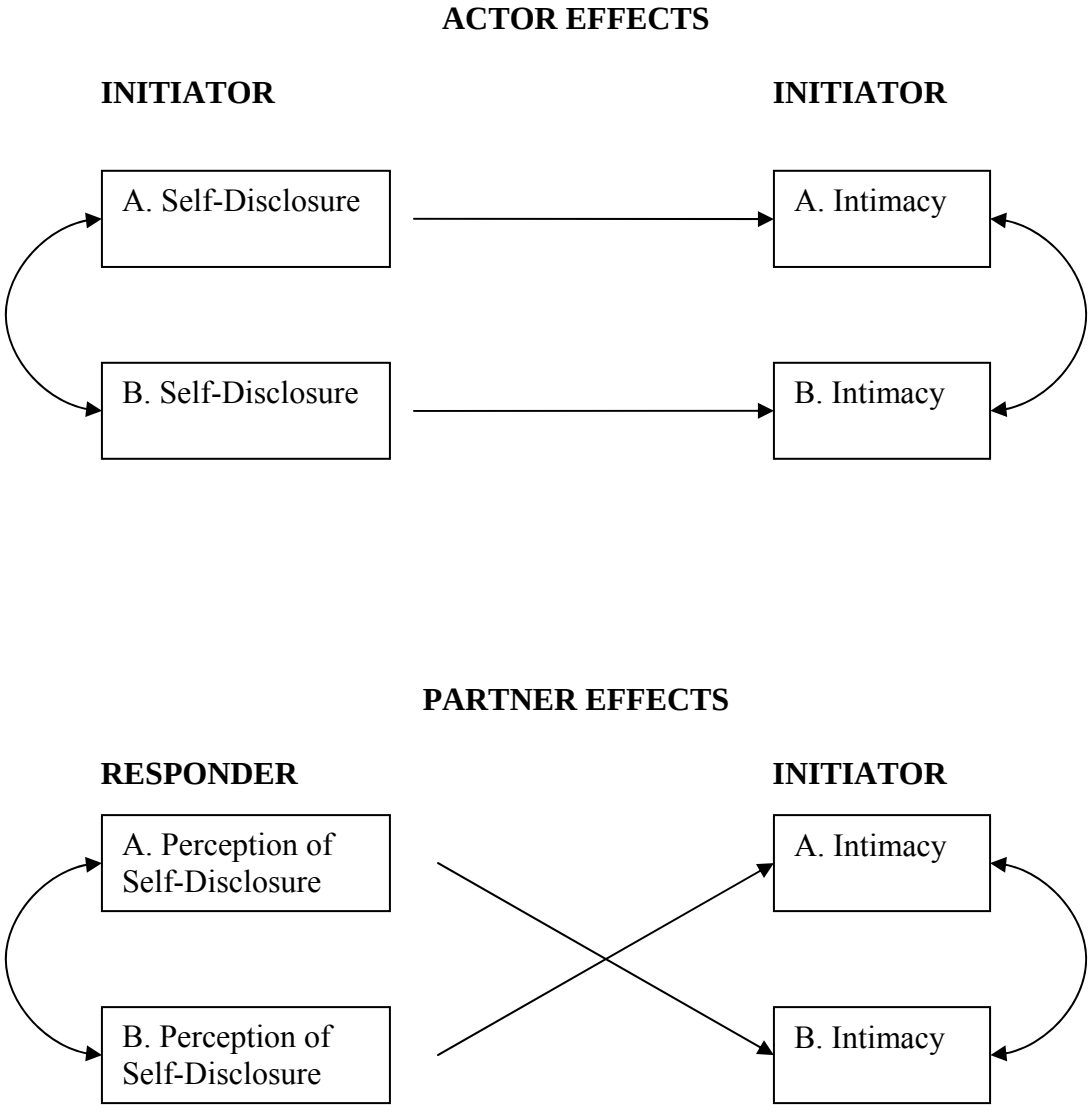

Figure 3: The Effect of Self-Disclosure on Initiator Reports of Intimacy.

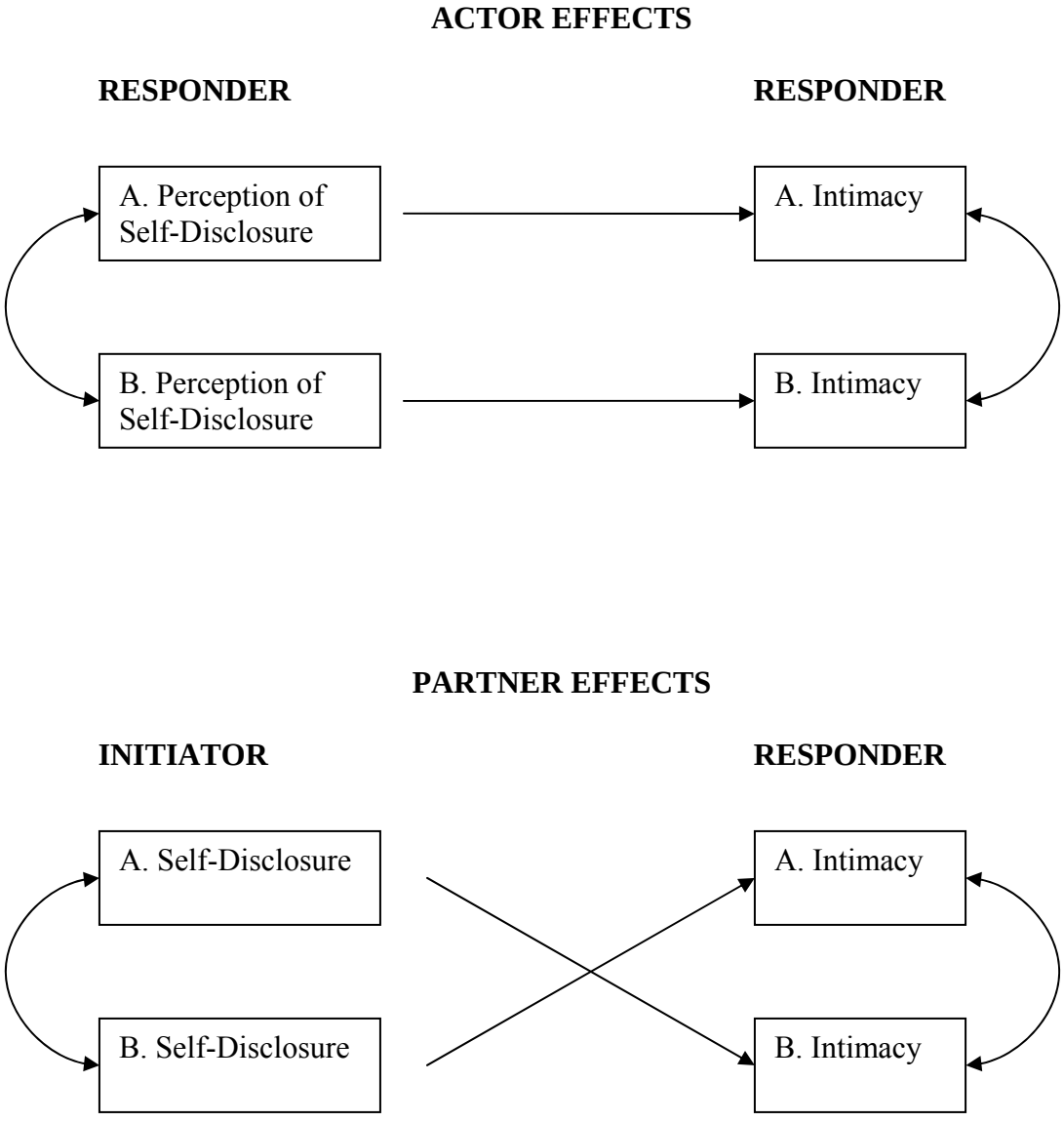

Figure 4: The Effect of Self-Disclosure on Responder Reports of Intimacy.

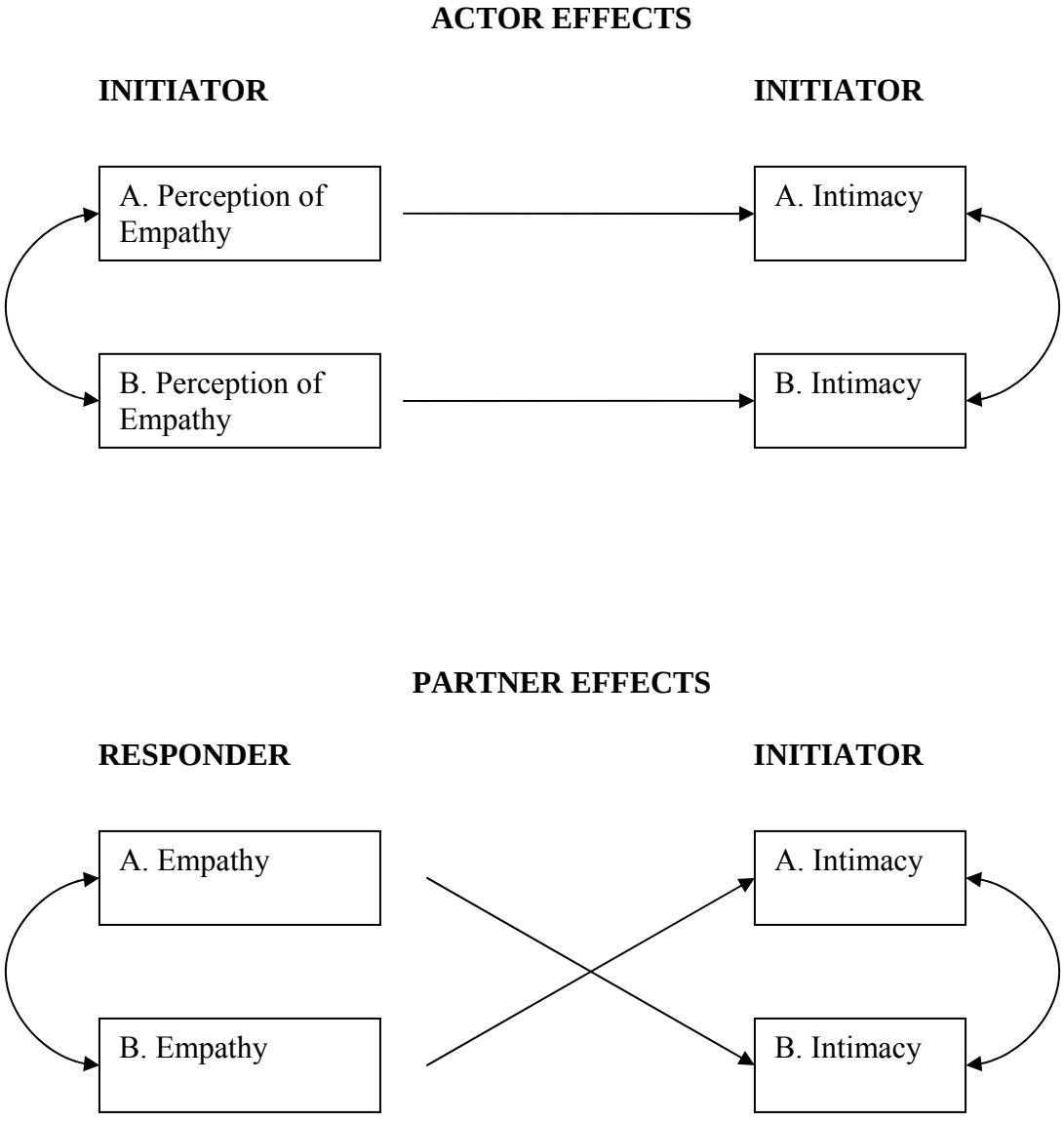

Figure 5: The Effect of Empathy on Initiator Reports of Intimacy.

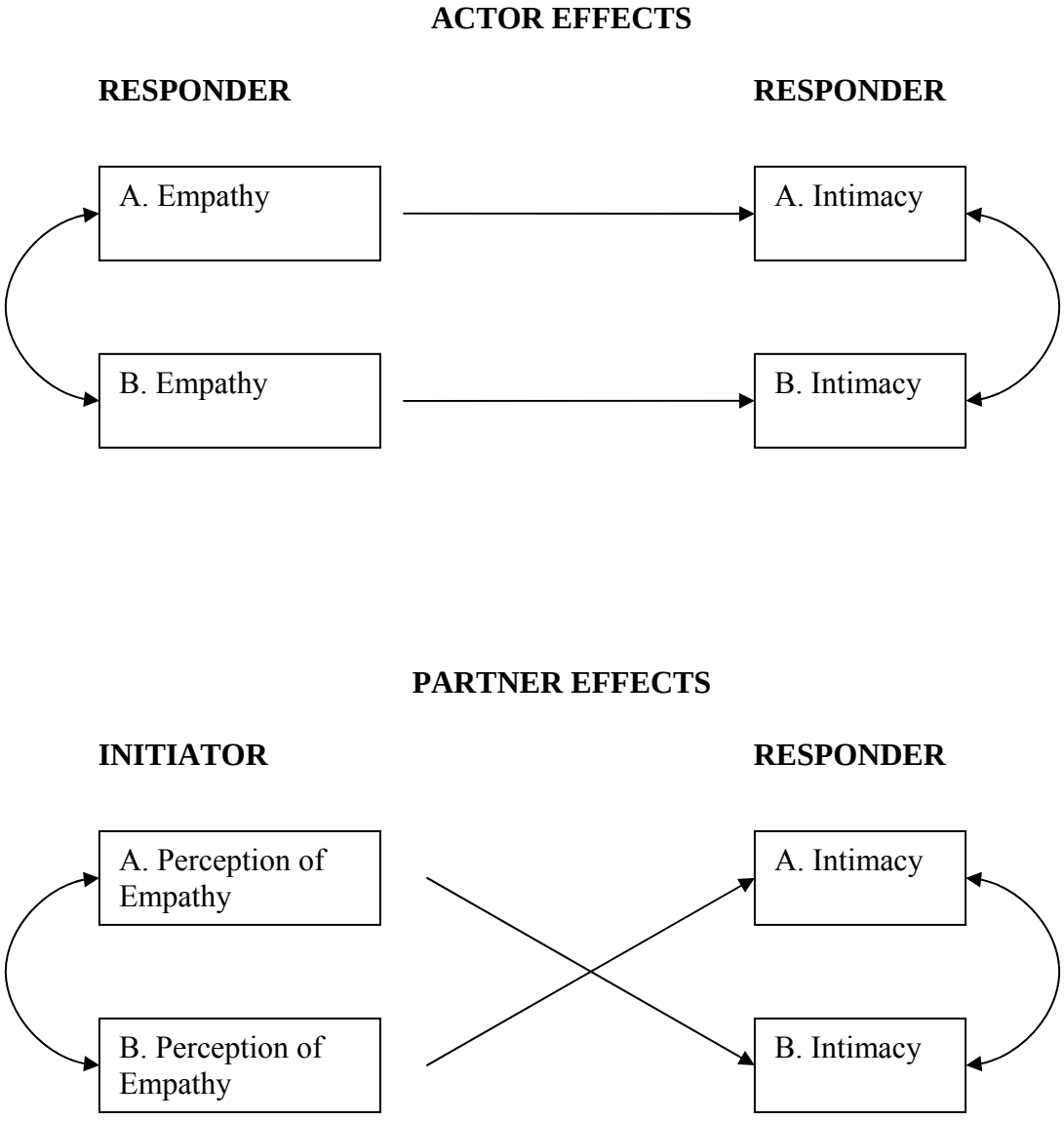

Figure 6: The Effect of Empathy on Responder Reports of Intimacy.

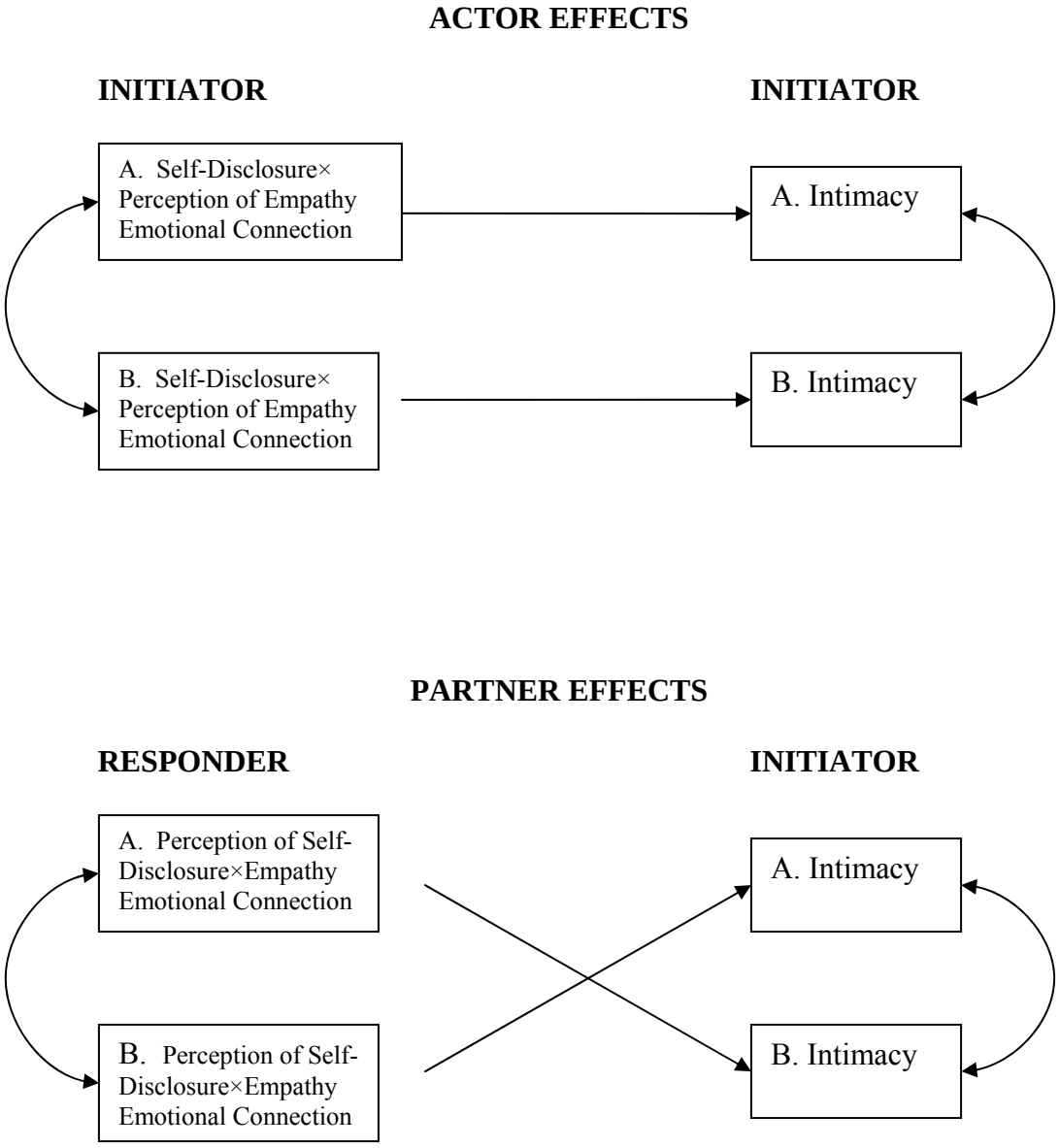

Figure 7: The Effect of Emotional Connection (Self-Disclosure×Empathy) on Initiator Reports of Intimacy.

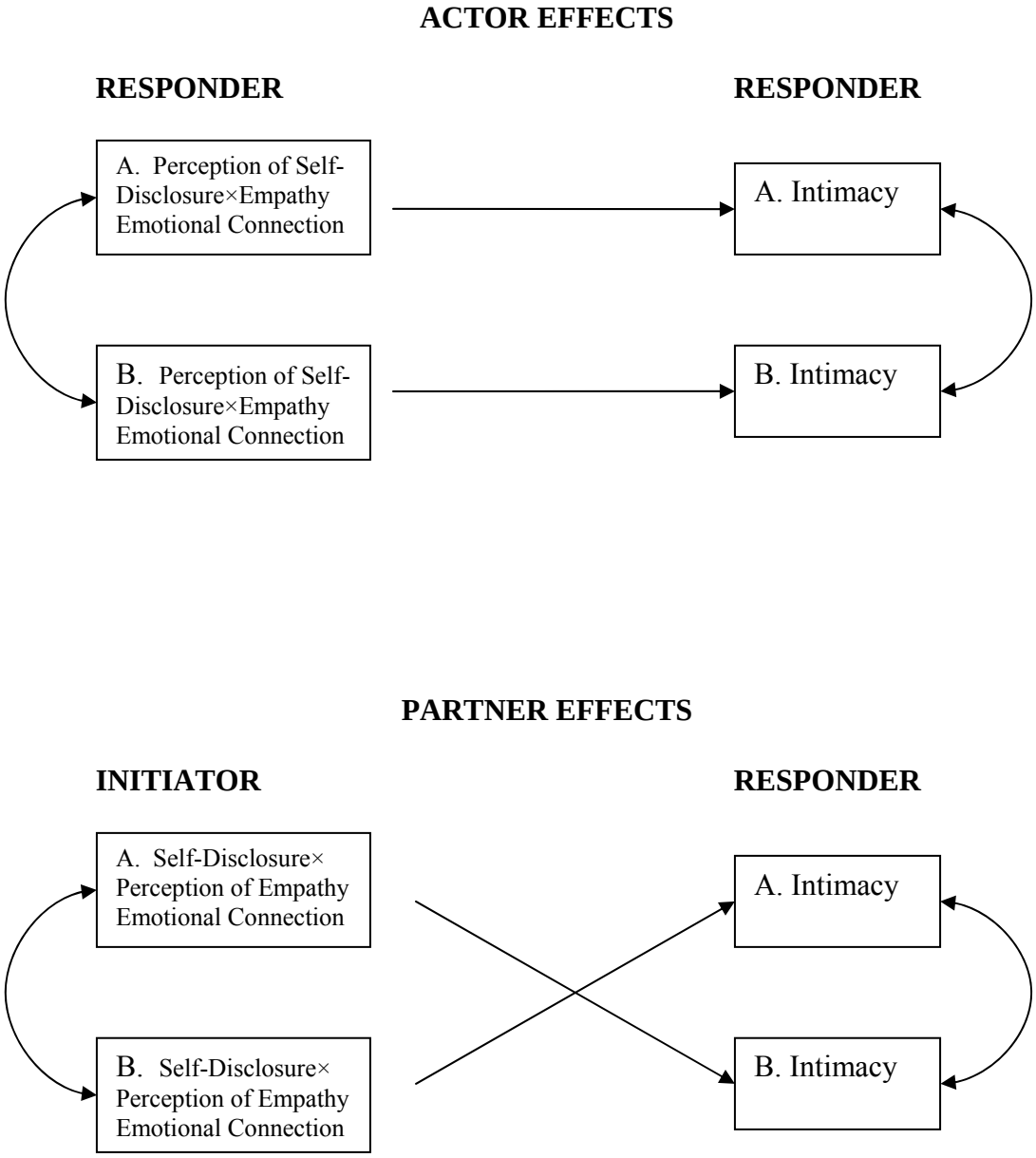

Figure 8: The Effect of Emotional Connection (Self-Disclosure×Empathy) on Responder Reports of Intimacy.

Table 1. Means and Standard Deviations for Male and Female Initiators' Predictor and Outcome Variables in Low- and High-Risk Discussions

Variable	Males		Females		Statistic
	M	*SD*	*M*	*SD*	*F* (1, 215)
Initiator					
Low-Risk Discussion					
Intimacy	5.93	1.46	6.32	1.33	4.37*
Self-Disclosure	17.11	1.99	17.33	1.85	.72
Perceived Empathy	18.56	1.96	18.69	1.82	.25
Emotional Connection	319.14	57.34	324.81	51.23	.59
High-Risk Discussion					
Intimacy	5.87	1.52	6.28	1.62	3.80*
Self-Disclosure	17.07	2.14	17.82	2.04	6.95***
Perceived Empathy	16.85	2.78	16.85	3.13	.00
Emotional Connection	289.87	67.61	302.94	73.14	1.86
Responder					
Low-Risk Discussion					
Intimacy	5.99	1.49	6.51	1.49	6.53**
Perceived Self-Disclosure	17.47	1.96	17.31	2.12	.36
Empathy	18.11	1.92	18.44	1.71	1.82
Emotional Connection	318.19	58.25	320.78	56.03	.11
High-Risk Discussion					
Intimacy	6.05	1.56	6.25	1.54	.94
Perceived Self-Disclosure	17.77	1.74	17.48	2.14	1.17
Empathy	16.79	2.62	16.89	2.70	.08
Emotional Connection	300.85	66.58	298.36	71.73	.07

*$p < .05$, **$p < .01$, ***$p < .001$

Table 2. Means, Standard Deviations, and Zero-Order Correlations for Initiators' Predictor and Outcome Variables in Low- and High-Risk Discussions

Variable	1	2	3	4
Low-Risk Discussion				
1. Intimacy	--			
2. Self-Disclosure	.43*	--		
3. Perceived Empathy	.42*	.32*	--	
4. Emotional Connection	.53*	.84*	.78*	--
M	6.13	17.22	18.63	321.98
SD	1.41	1.92	1.89	54.32

Variable	1	2	3	4
High-Risk Discussion				
1. Intimacy	--			
2. Self-Disclosure	.32*	--		
3. Perceived Empathy	.62*	.38*	--	
4. Emotional Connection	.59*	.75*	.89*	--
M	6.08	17.45	16.85	296.41
SD	1.58	2.12	2.95	70.57

*$p < .01$

Table 3. Means, Standard Deviations, and Zero-Order Correlations for Responders' Predictor and Outcome Variables in Low- and High-Risk Discussions

Variable	1	2	3	4
Low-Risk Discussion				
1. Intimacy	--			
2. Perceived Self-Disclosure	.43*	--		
3. Empathy	.43*	.45*	--	
4. Emotional Connection	.50 *	.88*	.82*	--
M	6.25	17.39	18.28	319.48
SD	1.51	2.04	1.82	57.03

Variable	1	2	3	4
High-Risk Discussion				
1. Intimacy	--			
2. Perceived Self-Disclosure	.47*	--		
3. Empathy	.62*	.55*	--	
4. Emotional Connection	.63*	.82*	.93*	--
M	6.15	17.63	16.84	299.61
SD	1.55	1.95	2.65	69.05

*$p < .01$

Table 4. Summary of Actor and Partner Effects of Self-Disclosure, Empathy, Emotional Connection, Risk-Level, and Gender on Reports of Intimacy

Variable	Actor Effect		Partner Effect	
	b	*t*	*b*	*t*
Self-Disclosure				
Initiator Self-Disclosure	.464	7.63***	.004	.06
Risk-Level×Self-Disclosure	-.002	-.04	.099	1.72^{+}
Gender×Self-Disclosure	.027	.41	-.038	-.59
Responder Perception of Self-Disclosure	.627	9.90***	-.053	-.87
Risk-Level×Perception of Self-Disclosure	.012	.21	-.007	-.13
Gender×Perception of Self-Disclosure	-.027	-.41	-.085	-1.28
Empathy				
Initiator Perception of Empathy	.719	10.63***	-.072	-1.12
Risk-Level×Perception of Empathy	.154	2.54**	.063	1.02
Gender×Perception of Empathy	-.040	-.57	.074	1.01
Responder Empathy	.741	11.09***	.038	.55
Risk-Level×Empathy	.108	1.71^{+}	.012	.19
Gender×Empathy	-.036	-.49	-.020	-.28
Emotional Connection (self-disclosure×empathy)				
Initiator Emotional Connection	.751	12.07***	.015	.25
Risk-Level×Emotional Connection	.073	1.35	.097	1.73^{+}
Gender×Emotional Connection	-.011	-.17	.039	.59
Responder Emotional Connection	.819	13.47***	.041	.65
Risk-Level×Emotional Connection	.053	.95	.009	.17
Gender×Emotional Connection	-.057	-.85	-.084	-1.28

Note. Values in table are unstandardized regression coefficients.
$^{+}p < .10$, $*p < .05$, $**p < .01$, $***p < .001$

Table 5. Combined Model Testing the Effects of Self-Disclosure, Empathy, Emotional Connection, Gender, and Risk-Level on Reports of Intimacy

Variable	*b*	*t*	*p*
Initiator			
Self-Disclosure	-.192	-.71	.476
Perception of Empathy	.024	.08	.935
Emotional Connection	.907	2.00*	.047
Risk-Level	-.023	-.47	.639
Gender	-.160	-3.19**	.002
Responder			
Perception of Self-Disclosure	-.046	-.17	.865
Empathy	.062	.21	.836
Emotional Connection	.811	1.66^{+}	.097
Risk-Level	-.054	-1.06	.289
Gender	-.168	-3.31***	.001

Note. Values in table are unstandardized regression coefficients.
$^{+}p < .10$, $*p < .05$, $**p < .01$, $***p < .001$

APPENDIX B

Measure of Hurt Feelings – "Hurt By Someone Else"

Please think of a time when your feelings were hurt by someone other than your partner (also not by someone closely associated with your partner – such as your partner's best friend or family member). Rate your level of hurt feelings on a scale from 1 to 10, indicating the degree to which your feelings were hurt and the significance of the situation for you. Please choose a topic that you rate as a 5, 6, or 7. Next, write a paragraph about the incident, particularly noting the emotion you experienced during the incident.

1	2	**3**	4	**5**	6	**7**	8	9	**10**
feelings were not hurt at all		**feelings were hurt some, but I got over it pretty quick**		**feelings were hurt moderately**		**feelings were hurt considerably, I was very upset**			**feelings were hurt extensively, I am still hurt**

Measure of Hurt Feelings – "Hurt By Partner"

Please think of a time when your feelings were hurt by your partner. Rate your level of hurt feelings on a scale from 1 to 10, indicating the degree to which your feelings were hurt and the significance of the situation for you. Please choose a topic that you rate as a 5, 6, or 7. Next, write a paragraph about the incident, particularly noting the emotion you experienced during the incident.

1	2	**3**	4	**5**	6	**7**	8	9	**10**
feelings were not hurt at all		**feelings were hurt some, but I got over it pretty quick**		**feelings were hurt moderately**		**feelings were hurt considerably, I was very upset**			**feelings were hurt extensively, I am still hurt**

Measure of Intimate Events – Initiator Version

***Please indicate how true the following statements are, SPECIFIC TO THIS INTERACTION*:**	Not at all true	Not very true	Moderately true	Very true
1. I told my partner about my feelings or emotions.	O	O	O	O
2. My partner listened attentively during this interaction.	O	O	O	O
3. The interaction felt pleasant.	O	O	O	O
4. I shared something personal or private during this interaction.	O	O	O	O
5. I feel closer to my partner following this interaction.	O	O	O	O
6. I was critical of my partner.	O	O	O	O
7. I felt safe and comfortable opening up to my partner.	O	O	O	O
8. I feel more distant to my partner following this interaction.	O	O	O	O
9. My partner expressed positive feelings toward me.	O	O	O	O
10. During the interaction, I felt anxious, like I was walking on eggshells.	O	O	O	O
11. We quarreled during this interaction.	O	O	O	O
12. I expressed a need, wish, or want.	O	O	O	O
13. My partner was supportive and caring during the interaction.	O	O	O	O
14. This interaction felt intimate.	O	O	O	O
15. My partner understood me.	O	O	O	O
16. My partner was critical of me.	O	O	O	O
17. It was difficult for me to open up to my partner.	O	O	O	O

Measure of Intimate Events – Responder Version

***Please indicate how true the following statements are, SPECIFIC TO THIS INTERACTION*:**	Not at all true	Not very true	Moderately true	Very true
1. My partner told me about his/her feelings or emotions.	O	O	O	O
2. I listened attentively during this interaction.	O	O	O	O
3. The interaction felt pleasant.	O	O	O	O
4. My partner shared something personal or private during this interaction.	O	O	O	O
5. I feel closer to my partner following this interaction.	O	O	O	O
6. I was critical of my partner.	O	O	O	O
7. My partner felt comfortable revealing his/her hurt feelings to me.	O	O	O	O
8. I feel more distant to my partner following this interaction.	O	O	O	O
9. I expressed positive feelings toward my partner.	O	O	O	O
10. During the interaction, I felt anxious, like I was walking on eggshells.	O	O	O	O
11. We quarreled during this interaction.	O	O	O	O
12. My partner expressed a need, wish, or want.	O	O	O	O
13. I was supportive and caring during the interaction.	O	O	O	O
14. This interaction felt intimate.	O	O	O	O
15. I believe I understood my partner.	O	O	O	O
16. My partner was critical of me.	O	O	O	O
17. My partner shared his/her true feelings during the interaction.	O	O	O	O

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Publications

Snyder, D.K., **Castellani, A.M.**, & Whisman, M.A. (2006). Current status and future directions in couple therapy. *Annual Review of Psychology, 57*, 317-344.

Snyder, D. K., Schneider, W. J., & **Castellani, A. M.** (2003). Tailoring couple therapy to individual differences: A conceptual approach. In Snyder, D. K., & Whisman, M. A. (eds.) *Treating difficult couples: Managing emotional, behavioral, and health problems in couple therapy.* New York, NY: Guilford Press.

Gee, C. B., Scott, R. L., **Castellani, A. M.,** & Cordova, J. V. (2002). Predicting 2-year marital satisfaction from partners' discussion of their marriage checkup. *Journal of Marital and Family Therapy, 28*, 399-407.

Snyder, D. K, Abbott, B. V., & **Castellani, A. M.** (2002). Assessing couples. In James N. Butcher (Ed.), *Clinical Personality Assessment (2nd ed.)* (pp. 225-242). New York, NY: Oxford University Press.

Honors and Achievements

- Recipient of Scientist-Practitioner Award for excellence in the integration of clinical practice and research; Texas A&M University, 2002